

## REMARKS

In the Official Action mailed on **23 May 2006**, the Examiner reviewed claims 1-5, 7-16, 18-27, and 29-33. Claims 1-5, 7-16, 18-27, and 29-33 were rejected under 35 U.S.C. §103(a) as being unpatentable over Frey, Jr. et al (USPN 5,201,044, hereinafter “Frey”) in view of Fleming (USPN 6,023,772, hereinafter “Fleming”).

### Rejections under 35 U.S.C. §103(a)

Independent claims 1, 12, and 23 were rejected as being unpatentable over Frey in view of Fleming. Examiner interprets that Frey teaches “...wherein the log device is located on a secondary server that is separate from the primary server in the highly available system and wherein the secondary server acts as a backup for the primary server.”

Applicant respectfully points out that Frey teaches “Each node maintains its own independent log file whose identifier is stored in a designated area on the node’s disk and also in its volatile memory” (see Frey, col. 5, lines 60-63). Further, Frey teaches “When a node malfunctions, volatile memory is often lost. However, data which has been written to disk (nonvolatile) will be retained and can be recovered when the node again becomes functional. The portion of the transaction log which has been written to disk enables the file system to know which transactions are complete or were in process at the time the malfunction occurred” (see Frey, col. 6, lines 21-33). In other words, Frey admits to the problem that the present invention is designed to solve—recovering from a malfunction without having to access nonvolatile storage (the disk). Frey teaches that recovering from a malfunction involves accessing the disk (see Frey, col. 9, lines 33-54).

Frey addresses a different issue than the present invention. The present invention **strives to avoid synchronization to disk**, since “this synchronization

process typically involves performing disk accesses, which can require millions of processor cycles to complete, and can hence greatly reduce computer system performance.” In contrast, Frey teaches “A fixed region in disk memory is preallocated for the log file” (see Frey, col. 5, lines 13-19), that “Each node maintains its own independent log file whose identifier is stored in a designated area on the node’s disk and also in its volatile memory” (see Frey, col. 5, lines 60-63), and that “data which has been written to disk (nonvolatile) will be retained and can be recovered when the node again becomes functional” (see Frey, col. 6 lines 27-33). Frey teaches that the durability of transactions are maintained using additional writes to disk.

In contrast, the present invention maintains its log in the **volatile memory of a secondary server** that is **separate from the primary server** (see FIG. 1, page 6, line 25 to page 7, line 12, and claim 10). This is beneficial because it allows recovery of file operations on the secondary server if the primary server fails, while also not delaying filesystem operations with additional disk operations. There is nothing within Frey or Fleming, either separately or in concert, which suggests maintaining a log in the volatile memory of a secondary server that is separate from the primary server to avoid delays due to writes to non-volatile storage.

Accordingly, Applicant has amended independent claims 1, 12, and 23 to clarify that the present invention maintains its log in volatile memory on a secondary server that is separate from the primary server. These amendments find support in FIG. 1, on page 6, line 25 to page 7, line 12, and claim 10.

Hence, Applicant respectfully submits that independent claims 1, 12, and 23 as presently amended are in condition for allowance. Applicant also submits that claims 2-5 and 7-11, which depend upon claim 1, claims 13-16 and 18-22, which depend upon claim 12, and claims 24-27 and 29-33, which depend upon claim 23, are for the same reasons in condition for allowance and for reasons of the unique combinations recited in such claims.

**CONCLUSION**

It is submitted that the present application is presently in form for allowance. Such action is respectfully requested.

Respectfully submitted,

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